

REMARKS

Claims 10-14 and 16-30 are pending. Claim 10 is amended. Claims 1-9 and 15 are canceled. Claims 16-30 have been added.

The specification has been amended to add clarity to the description. The modification to the specification is supported in FIGS. 5 and 6 of the drawings and on page 2, lines 17-20 of the specification of the present invention. Thus, the amendment to the specification does not add any new matter.

The drawings of FIG. 5 and FIGS. 8-10 are amended to correct an inaccuracy of the original drawings in FIG. 5 and FIGS. 8-10. New formal figures are filed herewith.

In FIG. 5, the two corners of the package area of the left hand side have been corrected with broader surface exactly as the rest two corners of the package area on the right hand side. In FIGS. 8-10, three sets out of the four sets of the plurality of frame leads have been corrected, to show that the frame leads are separated and insulated with each other.

Support for all of the amendments to the drawings can be found in the specification and other figures of the present invention, and therefore no new matter has been added thereby. The amendment to FIG. 5 is supported in the specification on page 5, lines 14-16 and FIG. 6. The amendment to FIGS. 8-10 are supported in the specification on page 5, line 25, page 6, line 4, and from the upper-right set of frame leads as shown in FIG. 8.

Regarding Claim 10, features of dependent Claim 15 are now incorporated into Claim 10, along with the features "with one end of each of said frame leads cut off from said frame", "with said one end of each of said frame leads and a part of said frame embedded", and "to form a semi-product having said electronic device, said frame leads, and said wires."

Also, the method as amended now includes "pre-measuring an electric characteristic of said semi-product before being subject to a plastic molding; and conducting a plastic molding process to pack said semi-product."

The added features regarding "cutting off one end of each frame leads" in the providing step of the amended independent Claim 10 are disclosed in page 5, lines 16-19 of the specification, and Fig. 6 of the drawings of the present invention. The added features regarding "with said one end of each of said frame leads and a part of said frame embedded" in the forming step of the amended Claim 10 are disclosed in page 5, lines 19-20 of the specification and Fig. 7 of the drawings of the present invention. Also, the added features regarding "to form a semi-product having said electronic device, said frame leads, and said

wires" in the electrically connecting step of amended Claim 10 are disclosed in page 5, line 27, and in page 6, lines 1-2 of the specification and Fig. 9 of the drawings of the present invention. Finally, the pre-measuring and conducting steps included in the amended independent Claim 10 are disclosed in page 6, lines 4-6 and 9-10 of the specification, and Figs. 9-10 of the drawings of the present invention respectively.

New Claims 16-30 have been added to further claims the patentable subject matter. For example, dependent Claim 16 sets forth replacing a defective component of said semi-product. This feature is disclosed on page 2, lines 17-20, where an object of the present invention is to prevent the defective semi-product before being subject to a plastic molding.

Dependent Claim 17 is added to include cutting off said packed semi-product from said frame to form a product. Examples of back-end procedures are described on page 6, lines 9-11 of the specification of the present invention.

Independent Claim 18 is added to include basically the first to second and the fourth to fifth steps of the original Claim 10 and the sixth step of the amended Claim 10 except that the first to second steps of Claim 18 have more restrictions than the first to second steps of the original Claim 10. The frame described in the first step of Claim 18 having a connecting arm connected to said frame, and a plurality of frame leads connected to said connecting arm is disclosed in Fig. 6 of the drawings of the present invention. The insulating block described in the second step of Claim 18 with one end of each of the frame leads embedded is disclosed in Fig. 7 of the drawings of the present invention. The third to fourth steps of Claim 18 are exactly the fourth to fifth steps of the original Claim 10 of the present invention. The fifth step of the Claim 18 is exactly the sixth step of the amended Claim 10.

The Dependent Claim 19 is partially disclosed in the fifth step of the amended Claim 10, also disclosed in page 5 line 27, and page 6, lines 1-6, and in Fig. 9 of the drawings of the present invention as well. Dependent Claims 20 is exactly the same as Dependent Claim 16. The dependent Claim 21 is disclosed in page 6, lines 9-11 of the specification of the present invention. Dependent Claims 22-25 are the same as the original dependent Claims 11-14.

Independent Claim 26 is added to include four steps with the first and third to fourth steps the same as the first and third to fourth steps of the original Claim 10, and the second step the same as the second step of Claim 18. Dependent Claim 27 is basically the same as the amended dependent Claim 20 of the present invention without mentioning the semi-product. Dependent Claims 28-29 are added to disclose the added steps regarding the details of the first step in Claim 26, that one end of each of the frame leads should be cut off the

frame and turned before a insulating block is formed are disclosed in page 5, lines 16-20 of the specification, and Fig. 6 of the drawings of the present invention respectively. Dependent Claim 30 is basically the same as the sixth step of the amended independent Claim 10, and is disclosed in page 6, lines 7-8 of the specification and in Fig. 10 of the drawings of the present invention.

Using one of the unique features proposed in the disclosed method of the present invention as an example, that is to pre-measure the electric characteristics among said frame leads and said electronic device before being subject to a plastic molding, which is impossible by using the structure provided in the Applicant's admitted prior art since all the leads are interconnected and short-circuited (as shown in FIG. 2 of the drawings of the present invention). In another packing structure proposed by Pitzele et al. (US Patent No. 5,345,670), the dams and the peripheral flashing of the lead frame stock are trimmed from the leads after the molding process (as described in lines 57 to 65 of column 3), which means the leads are still connected to the frame (peripheral flashing) through the dams before molding process, and thus the pre-measuring of the electric characteristics among said frame leads and said electronic device before being subject to a plastic molding is impossible due to the fact that all the leads are interconnected to each other and to the ground (peripheral flashing).

In Gainey (US Patent No. 5,338,899), a semiconductor device is encased within a package body and could not be reused if a defect is found by a test through the outer parts of the unformed leads (16). In the '899 patent, the pre-measurements are those measurements proceeded after the plastic molding procedure but before the back end procedures of the products. Since the plastic molding procedure for packing the semiconductor device was already finished, the results of the measurements can only be used to decide whether the packed semiconductor device is good or not. Furthermore, the guard rings (14) are only used to protect the formed leads from further damage in transit but not to protect the packed semi-products. But in the present invention, the pre-measurements are those measurements proceeded before the plastic molding, and the soldering defects such as the open circuits among the leads and the metal wires can be corrected by replacing/reworking the defective components so as to decrease the defective ratio of the packed products after a plastic molding procedure.

Accordingly, the method proposed in the present invention is not disclosed by the prior art and the present invention is patentable over the cited references.

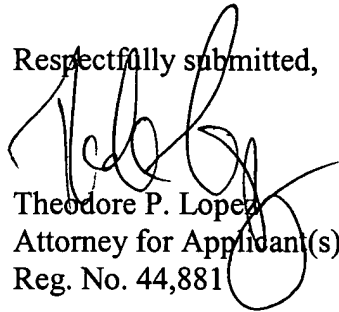
CONCLUSION

For the above reasons, pending Claims 10-14 and 16-30 are now in condition for allowance and allowance of the application is hereby solicited. If the Examiner has any questions or concerns, the Examiner is hereby requested to telephone Applicant's Attorney at (949) 752-7040.

Express Mail Label No.:

EV 252 520 713US

Respectfully submitted,


Theodore P. Lopez
Attorney for Applicant(s)
Reg. No. 44,881

LAW OFFICES OF
MACPHERSON KWOK CHEN
AND HEID LLP

2402 MICHELSON DRIVE
SUITE 210
IRVINE, CA 92612
(949) 752-7040
FAX (949) 752-7049